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REMARKS

The Applicants request reconsideration of the rejection.

Claims 1-20 remain pending.

Claims 1-4, 7-17 and 19 were rejected under 35 U.S.C.
102(e) as being anticipated by Swank, U.S. 2003/0172239
(Swank). The Applicants traverse as follows.

Independent Claim 1 is directed to a management
computer. The management computer includes a storage area
information collecting module, a hierarchy information
collecting module, and a management relation information
creation module. Each of these features of the claimed
management computer is distinguishable from Swank, as
follows.

Against the claimed storage area information collecting
module, the Office Action cites Swank at paragraphs 16-20,
disclosing the gathering and correlation of information
about Storage Area Network (SAN) components through agents
associated with the host. The structure of the network
topology disclosed by Swank, however, demonstrates that
Swank's manager 20 does not have a storage area information
collecting module corresponding to that claimed in Claim 1.
Note that the management computer of Claim 1 is connected to

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the data storage apparatuses through "a second network" (alleged to correspond to LAN 18 of Swank), but the agents that collect the information about the SAN components do not do so via the LAN 18. Thus, the manager 20 of Swank does not "collect[s] respective pieces of storage area information from said data storage apparatuses connected through the second network wherein each piece of storage area information relates to storage areas provided by a data storage apparatus concerned," as required by Claim 1. Rather, the agents (although "proxies" for the manager), are associated with the hosts and communicate with the SAN through a network that corresponds better to the claimed "first network".

Furthermore, Swank does not disclose a hierarchy information collecting module as set forth in Claim 1. Against this feature, the Office Action cites paragraph 19, lines 1-5 of Swank. Paragraph 19, however, broadly discloses that Swank may provide systems in which one or more agents utilize their associated hosts to query and otherwise gather information regarding storage devices to the hosts via an interconnect. Thus, the information gathered by the agents is essentially gathered by the hosts,

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and not by the management computer that comprises the

hierarchy collecting module according to Claim 1.

Furthermore, the Office Action asserts that the host and

available logical units are "hierarchically configured" as

defined in the present specification at Page 8, lines 3-6.

This passage of the present specification defines "a

hierarchical configuration of <u>data storage apparatuses</u>" as a

plurality of data storage apparatuses that are connected to

a computer in a multi stage way seen from the computer.

Such is not a hierarchical configuration of a host and a

data storage apparatus, but rather a hierarchical

configuration of the data storage apparatuses themselves.

Swank does not disclose or suggest in paragraph 19, or in

any other portion of the patent publication, that data

storage apparatuses should be hierarchically configured.

To emphasize this patentable feature of the claimed

invention, Claim 1 has been amended to recite that each

piece of hierarchy information collected by the hierarchy

information collecting module indicates a data storage

apparatus hierarchy of a multistage connection of said data

storage apparatuses, including those data storage

apparatuses that have storage areas for storing data used by

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said computers through a storage area of a higher one of said data storage apparatuses according to said hierarchy as noted in the previous paragraph. Swank does not disclose a hierarchy among the data storage apparatuses disclosed in the patent publication.

Additionally, Swank does not disclose a management relation information creation module corresponding to that claimed in Claim 1. The claimed management relation information creation module sets the hierarchies among the data storage apparatuses to create management relation information, based on the pieces of storage area information and the pieces of hierarchy information collected in the storage area information collecting module and the hierarchy collecting module. As noted above, Swank does not disclose a hierarchy among data storage apparatuses. Necessarily, then, Swank does not disclose a management relation information creation module that sets the hierarchies among data storage apparatuses to create management relation information, based on storage area information and hierarchy information collected by modules of the management computer. In fact, paragraph 256, lines 6-13 (cited in the Office Action) disclose that the SAN manager 20 is responsible for

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carrying out policies relating to the assignment of LUNs to hosts based on criteria set by a SAN administrator, particularly for deciding whether or not to assign LUNs to a host, which LUNs should be assigned, and whether or not to issue an alert. While the Office Action asserts that the SAN manager thus sets the hierarchy between the hosts and the storage devices, the claimed management relation information creation module sets hierarchies among the data storage apparatuses. Therefore, Swank does not anticipate the claimed management relation information creation module.

Independent Claim 8 is directed to a management computer that comprises an arithmetic unit and a memory, wherein the arithmetic unit collects respective pieces of storage area information from the data storage apparatuses connected through the second network, collects respective pieces of hierarchy information from the data storage apparatuses, and sets hierarchies among the data storage apparatuses to create management relation information, using similar to that discussed above with respect to Claim 1. Accordingly, the management computer claimed in Claim 8 patentably defines over Swank for the same reasons that Claim 1 patentably defines over Swank.

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Independent Claim 10 is directed to a computer-readable storage medium containing a computer program product for a management computer, wherein the management computer executes the computer program product including a code for collecting respective pieces of storage area information from the data storage apparatuses connected through the second network, a code for collecting respective pieces of hierarchy information from the data storage apparatuses, a code for setting hierarchies among the data storage apparatuses to create management relation information, and a code for outputting the created management relation information. Claim 10 has also been amended like Claim 1, to emphasize the patentability of the hierarchy established according to the invention. As such, the computer-readable storage medium containing the computer program product is patentably distinguishable from Swank.

Independent Claim 12 is directed to a computer system comprising a group of data storage apparatuses including at least one first type of data storage apparatus providing a storage area for storing data used by a computer and at least one second type of data storage apparatus providing a storage area for storing data used by the computer through

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the first type of data storage apparatus. The computer

system further comprises a management computer that manages

the group of data storage apparatuses, a first network

connecting between the computer and the group of data

storage apparatuses, and a second network connecting between

a group of data storage apparatuses and the management

computer. The management computer comprises a storage area

information collecting module, a hierarchy information

collecting module, and a management information creation

module similar to those set forth in Claim 1. Therefore,

the computer system of Claim 12 is patentably

distinguishable from Swank at least for the same reasons

that Claim 1 is patentably distinguishable.

Independent Claim 13 recites a management method in a

management computer connected through a second network to

data storage apparatuses that are connected to computers

through a first network, the method comprising steps of

collecting respective pieces of storage area information

from the data storage apparatuses connected through the

second network, collecting respective pieces of hierarchy

information from the data storage apparatuses connected

through the second network, and setting hierarchies among

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the data storage apparatuses to create management relation

information, all using language similar to the functions set

forth in Claim 1. Accordingly, Claim 13 recites patentable

subject matter for reasons similar to the arguments set

forth above with respect to Claim 1.

Claims 6, 18 and 20 were rejected under 35 U.S.C. 103(a)

as being unpatentable over Swank in view of IBM User

Interface Architecture (December 2001)(IBM). The Applicants

traverse as follows.

Independent Claim 20 recites a computer system,

including among other features, a management computer that

comprises a storage area information collecting module, a

hierarchy information collecting module, a hierarchy

information collecting module, and a management relation

information creation module, which are similar to those set

forth in Claim 1. Therefore, independent Claim 20 is

patentably distinguishable for reasons similar to those

advanced above with respect to Claim 1.

In addition, Claim 20 has been amended to more

particularly recite that the storage area information

collecting module issues a request to the data storage

apparatuses for respective pieces of storage area

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information from the data storage apparatus, wherein the data storage apparatuses receive the request from the storage area information collecting module, and send the respective pieces of storage area information to the storage area information collecting module in response to the request. Swank employs agents associated with the host computers to gather information, in contrast to the manager which ultimately receives the information from the agents.

Furthermore, Claim 20 has been amended to recite that the hierarchy information collecting module issues a request to the data storage apparatuses for the respective pieces of hierarchy information, wherein the data storage apparatuses receive the request, and in response to the request, send the respective pieces of hierarchy information collecting module. Swank does not have corresponding structure performing corresponding functions.

Dependent Claim 6 recites the management computer of Claim 4, further comprising a warning message creation module that, when a data storage apparatus chosen from display data is judged to be a second type of data storage apparatus that provides a storage area for storing data used by a computer through a first type of data storage

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apparatus, creates a warning message to send the warning message to an output device. In the preferred embodiment of the disclosed invention, the warning message alerts the user that the selected type of second data storage apparatus is lower in the hierarchy than the first type of data storage apparatus, so that deleting or otherwise performing an incorrect operation on a storage area in the second type of data storage apparatus can result in the loss of data of a higher-level data storage apparatus in the hierarchy.

Against this feature, the Office Action cites IBM as teaching that a user interface should display a warning message "to indicate that an undesirable situation in a process could occur but the user can choose to continue." Respectfully, the present inventors do not assert themselves to be the first to invent the display of a warning message in the event of an undesirable situation. IBM does not disclose that such a warning message may be created by a warning message creation module included in a management computer such as that claimed, or that the warning message should be created upon selection of a second type of data storage apparatus that provides a storage area for storing data used by a computer through a first type of data storage

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apparatus that shares a hierarchy with the second type of

data storage apparatus. Accordingly, any motivated

combination of IBM with Swank does not lead the person of

ordinary skill to the invention claimed in Claim 6.

By a similar argument, the method Claim 18, including a

step of creating a warning message to send a created warning

message to an output message when an extracted data storage

apparatus is judged to be the second type of data storage

apparatus, is neither disclosed or suggested by the

combination of Swank and IBM.

Dependent Claims 2-5, 7, 9, 11, 13-17, and 19 contain

numerous apparatus and method limitations that are neither

disclosed nor suggested by Swank, whether taken individually

or in combination with any reference of record. Moreover,

independent Claim 20 employs various ones of these and other

limitations in providing additional patentability over the

disclosure of Swank, whether taken individually or in view

of IBM or any other reference of record. For brevity, these

features will not be separately discussed in this paper, but

the Applicants assert their right to separate patentability
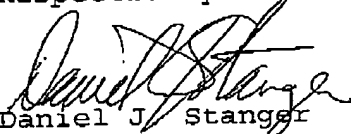
of each of these claimed features.

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New claims 21-22 and 23-24 are dependent, respectively, on claims 1 and 12. Claims 21 and 23 recite that data to be stored in a second storage area of a data storage apparatus of the second type is a copy of data stored in a first storage area of a data storage apparatus of the first type. Claims 22 and 24 recite that a first storage area is a virtual storage area viewed by the host computer as being formed in a data storage apparatus of the first type, and the data used by the host computer viewed as being virtually stored in the first storage area is physically stored in a second storage area of the second type. Independent claim 20 has been amended to include these features as well.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,

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